

Notice of Allowability

Application No.

10/510,212

Applicant(s)

ISHIKAWA ET AL.

Examiner

Anastasia Midkiff

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant Amendment filed 05 February 2007.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

ASM *[Signature]*
2/27/07

DETAILED ACTION

Allowable Subject Matter

Claims 1-18 are allowed.

The following is an examiner's statement of reasons for allowance:

With respect to Claims 1, 5, 9, and 14, the prior art of record teaches many of the elements of the claimed invention, including an x-ray tube control apparatus which remotely controls an x-ray tube, and the method for its use, comprising: an input means to which a maximum tube voltage value of the tube is input; storage means which stores a plurality of warming-up programs for respectively increasing a tube voltage and a tube current of said x-ray tube to a maximum tube voltage value and a maximum tube current value; extraction means which extracts one from said plurality of warming-up programs stored in first said storage means which corresponds to the maximum tube voltage value after being changed at that time that the maximum tube voltage value of the tube is changed; and resetting means in a control apparatus that controls an operation of said x-ray tube; and an output means which outputs said warming-up program extracted by said extraction means.

However, prior art fails to teach or fairly suggest the apparatus and method wherein the increase in voltage and/or current during tube warm-up is dependent upon the downtime of the tube in the manner required by Claims 1, 5, 9, and 14.

Further, with respect to Claims 1 and 5, prior art fails to teach or fairly suggest a rewriting means, stored in a memory section in the control apparatus that controls the operation of tube, which rewrites a warming up program, stored in said memory, with

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the warming-up program extracted by said first extraction means via a telecommunications line, in the manner required by Claims 1 and 5.

With respect to Claims 2-3 and 6-7, the prior art of record teaches many of the elements of the claimed invention, including an x-ray control apparatus which remotely controls an x-ray tube, and the method for its use, comprising: storage means which stores a plurality of limit tube voltage control, or limit current control, programs with a limit tube voltage value, or limit tube current value, corresponding to a maximum tube voltage value of said x-ray tube as a threshold, according to the maximum tube voltage values; extraction means which extracts said limit tube voltage control, or limit current control, program from said plurality of limit tube voltage control, or limit current control, programs stored in first said storage means which corresponds to the maximum tube voltage, or current, value after being changed at that time that the maximum tube voltage value of the tube is changed; and resetting means in a control apparatus that controls an operation of said x-ray tube.

However, prior art fails to teach or fairly suggest a rewriting means, stored in a memory section in the control apparatus that controls the operation of tube, which rewrites a limit tube voltage control, or limit current control, program stored in said memory, with the limit tube voltage control, or limit current control, program extracted by said first extraction means via a telecommunications line, in the manner required by Claims 2-3 and 6-7.

With respect to Claims 4 and 8, the prior art of record teaches many of the elements of the claimed invention, including an x-ray control apparatus which remotely

controls an x-ray tube, and the method for its use, comprising: storage means which stores a plurality of focus lens control programs controlling a focus lens in such a way as to minimize a focal point when an electron beam hits a target of said x-ray tube with a maximum tube voltage applied to the target, according to the maximum tube voltage values; extraction means which extracts said focus lens control program from said plurality of focus lens control programs stored in first said storage means which corresponds to the maximum tube voltage value after being changed at that time that the maximum tube voltage value of the tube is changed; and resetting means in a control apparatus that controls an operation of said x-ray tube.

However, prior art fails to teach or fairly suggest a rewriting means, stored in a memory section in the control apparatus that controls the operation of tube, which rewrites a focus lens control program stored in said memory, with the focus lens control program extracted by said first extraction means via a telecommunications line, in the manner required by Claims 4 and 8.

Claims 10-13 and 15-18 are allowed by virtue of their dependency upon Claims 9 and 14, respectively.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

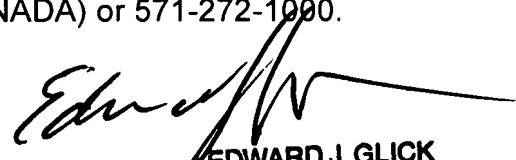
U.S. Patent Documents to: Daniels et al. (US 4,160,906), Ochmann et al. (US 4,797,905), and Nakamura et al. (US 2004/0109537 A1) regarding x-ray tube control methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anastasia Midkiff whose telephone number is 571-272-5053. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ASM
2/27/07



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER